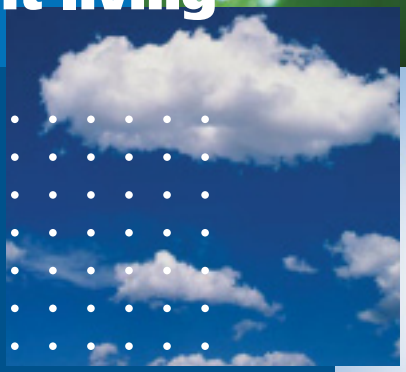
Balanced ventilation for healthy and energy-efficient living

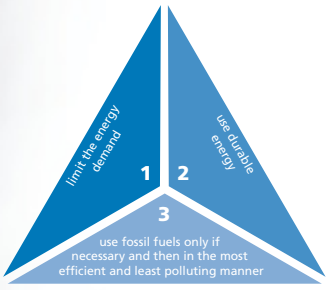


Climate OK

BRINK

Climate Systems

The environment, our joint concern. Application of heat recovery means a substantial contribution to a reduction of the emissions of CO_2 and NOx.


limit the energy demand
1
use durable energy
2
3
use fossil fuels only if necessary and then in the most efficient and least polluting manner

Trias Energetica

Trias Energetica (SenterNovem)

Observing the trias energetica is valuable for realising a durable EPC. Start with as many measures as possible from step 1. If that is no longer possible in a sensible manner, then take as many measures as possible from step 2. If there is a remaining demand, finally take the measures from step 3. Application of heat recovery considerably reduces the energy demand and, consequently, comes under step 1.

Balance between dwelling ventilation and the environment

Making life in dwellings and buildings more comfortable, that is what we do. That is inseparably connected with attention for health and a clean environment. Abundant use of fossil fuels has caused the problem of rapid global warming, also known as the "greenhouse effect'. At the same time supplies of fossil fuels such as coal, oil and natural gas are rapidly running lower. And the emission of harmful flue gases does not do our living environment much good either.

HEADING

This environment problem is a hot issue all over the world. International treaties and national initiatives are signs of an increasing willingness to do something about these environment problems. The Dutch government has laid down what is known as the Energie Prestatie Norm (EPN) [or Energy Performance Standard (EPS)] in the Building Decree. That introduced an 'unambiguous yardstick for the energy quality of a building'. On the basis of this standard, the Energy Performance Coefficient (EPC) can be determined for every building. In 2006 the maximum permissible value for dwellings was reduced to 0.8.

IF YOU INSULATE, YOU MUST VENTILATE

In the UK & Ireland government's building regulations have been made considerably stricter over the past decade. That has in particular been brought about by care for our environment (CO_2 emission) and the need to cut back on the use of fossil fuels. As far as residential building is concerned, this has resulted in strict insulation standards. After all, in a tightly sealed home considerably less energy is used than in a dwelling from the seventies or earlier. However, this does have its drawbacks. To prevent draughts, many people do not ventilate their home in winter, which causes a bad air quality. Not to mention the accompanying 'humidity problems'. Every day an average family produces some 10 litres of water vapour through showering, cooking, washing, perspiring, etc. If the rooms are not ventilated sufficiently, that has harmful consequences for the building structure as well as for the residents themselves. All in all it's not so strange that GPs find an increasing incidence of chronic respiratory problems.

ENERGY-EFFICIENT, HEALTHY AND COMFORTABLE

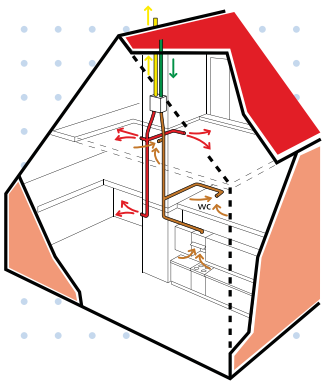
Our minds are always occupied with the problem of how to heat a dwelling pleasantly. With sufficient ventilation as well as a minimum of energy, so we can breathe healthily in a comfortable environment every moment of the day. The answer is: balanced ventilation with heat recovery by Brink Climate Systems. This means mechanical supply of atmospheric air in combination with mechanical extraction of waste air. That way the indoor climate complies with all requirements everywhere and in every season. And as to the energy problem: the answer is heat recovery. The thermal energy of the discharged air is transferred to the incoming, colder air. At an efficiency of no less than 95%.

BRINK Climate Systems

Energy saving

The Renovent HR produces 10 to 15 times more energy than it uses. The heat exchanger transfers 95% of the heat, so it is no longer necessary to heat the ventilation air. The amount of recovered heat is roughly equivalent to 300 to 400 m³ of natural gas annually.

The solutions: balanced ventilation with heat recovery

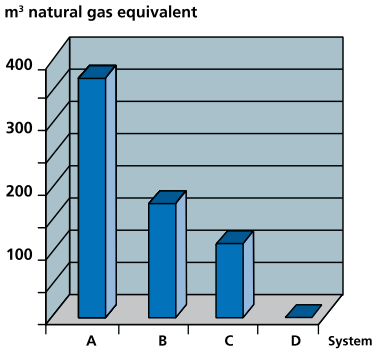


BALANCED VENTILATION WITH RENOVENT HR

- Discharge foul air
- Supply outdoor air
- Discharge foul air from kitchen, bathroom and toilet
- Heated outdoor air to the bedroom and the sitting room

A popular ventilation method is to simply place ventilation grilles in the wall, in combination with a mechanical extraction system. However, this is an unbalanced and rather uncomfortable way to ventilate. The incoming and outgoing air flows are hardly under control, energy is wasted unnecessarily and at the same time the comfort literally flows out of the window. Many people find the incoming flow of fresh ventilation air unpleasant.

SAVINGS HEAT RECOVERY



Systems

A = Brink heat recovery at 95% efficiency
B = Solar boiler
C = Heat pump
D = Mechanical ventilation

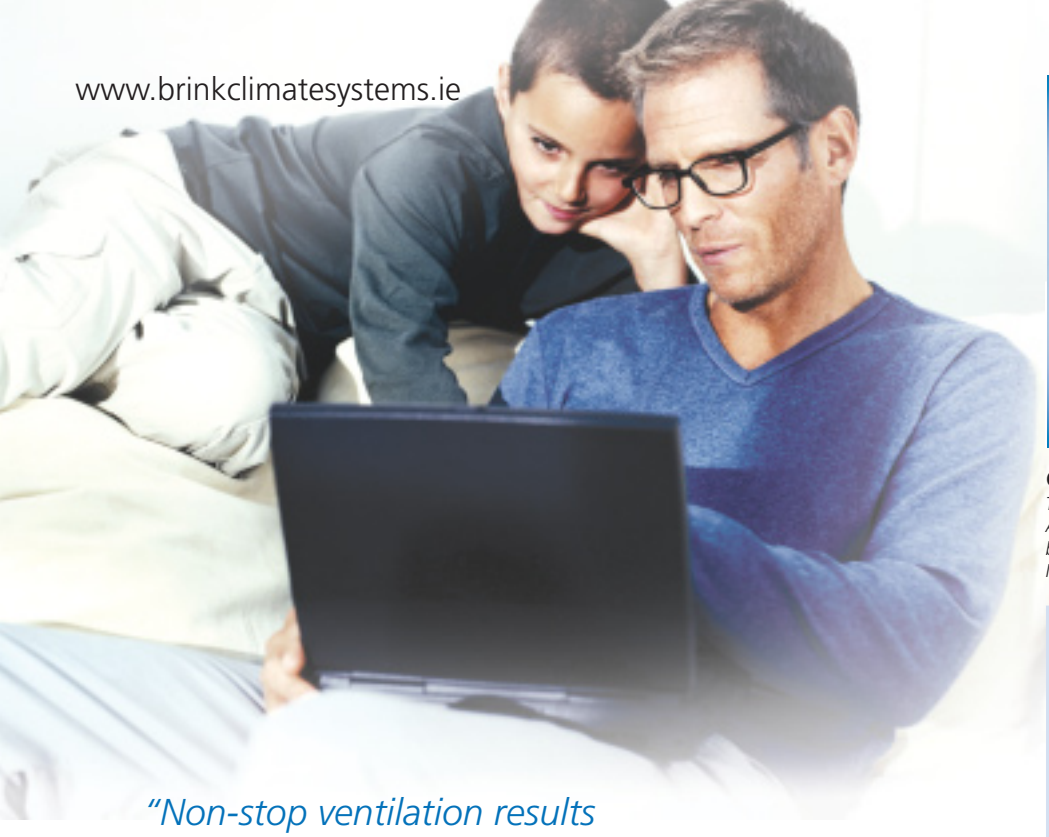
HIGH EFFICIENCY MEANS ENERGY-SAVING

Balanced ventilation in combination with heat recovery brings the solution to your home. The foul and humid air from kitchen, bathroom and toilet is extracted.
The same quantity of clean, preheated air is supplied to bedrooms and living rooms. Out just as much as in. The heat recovery system transfers the energy of the discharged air to the fresh, colder outside air. That way 95% of the heat is preserved and waste of energy is prevented.
The air is supplied and extracted through automatically controlled low-energy direct current (DC) fans. These use 50% less energy than traditional fans. Higher taxes on energy consumption make an energy-efficient appliance even more important.

THE FUNDAMENTAL ADVANTAGES OF BALANCED VENTILATION WITH HEAT RECOVERY.

- Contributes considerable energy savings (approx. 300 to 400 m³ of natural gas annually).
- Guarantees a healthy and comfortable indoor environment.
- Offers the highest EPC gains at the lowest costs.
- It is the ultimate solution to comply with the standard (EPC and Building Decree).

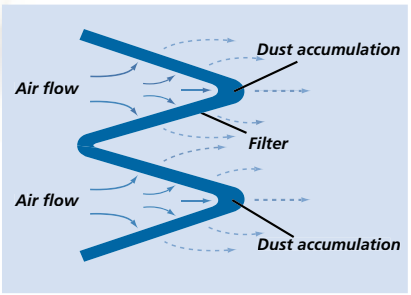
BRINK Climate Systems



"Non-stop ventilation results in a healthy indoor climate."

Constant filtering

The appliances come with two standard filters.
A high-quality fine dust filter is optionally available (see bottom filter on photograph).
Ideal for people with sensitive respiratory organs.

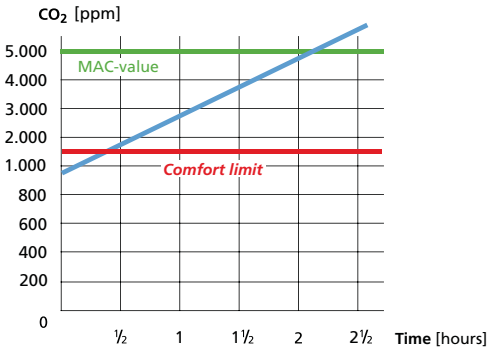


Basic drawing fine dust filter

The Brink filter system clears the air.

Constant air filtering means a breath of relief

Balanced ventilation guarantees a healthy living environment. You prevent breathing in polluted air and you guarantee the supply of sufficient oxygen. Humidity problems that lead to mould, house dust mite etc. do not stand a chance. The health of the occupants and the preservation of the quality of the dwelling are sound arguments to introduce balanced ventilation with heat recovery.



CO_2 content in ppm

In a badly ventilated bedroom the CO_2 content can reach the maximum accepted concentration (MAC value) in no more than 2½ hours.

THE HEAT RECOVERY UNIT RENOVENT HR

Renovent HR has specially been designed for balanced ventilation with heat recovery. The thermal energy in the foul air that is discharged from the dwelling is used to heat the fresh, clean outdoor air that is brought in. The appliance ensures that the indoor air is continuously refreshed and filtered.

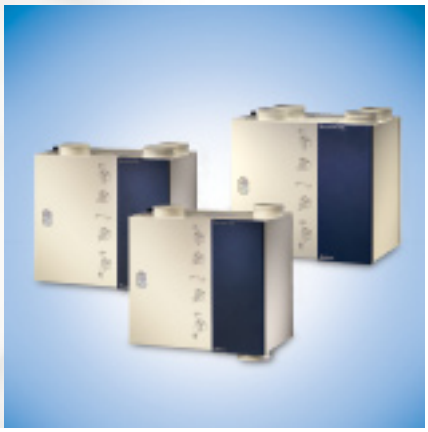
CONSTANT FILTERING

The heat recovery unit has two standard filters that can easily be taken out after opening the filter door. These filters remove 95% of the dust from the air. One filter filters the fresh outdoor air before it enters the dwelling. The other one filters the used air from the dwelling before it leaves the dwelling again through the appliance. For people with a sensitive respiratory system, filtering even the smallest dust particles literally means a breath of relief. For that purpose a fine dust filter (F7) is available. It replaces the lower standard filter. The fine dust filter removes nearly all pollutants (99%) from the air, including pollen, fungi, tobacco smoke, germs and bacteria. Ideal for people with sensitive respiratory organs.

RADON REDUCTION

Radon is a radioactive inert gas that is released from building materials and from the soil. In dwellings, particularly in crawl spaces, radon can accumulate in the air. According to the Health Council, exposure to radon indoors leads to an estimated 800 additional cases of lung cancer. Ventilating helps to keep the radon concentration in the dwelling low.

"The arguments and the comfort are convincing."



Three versions
Every dwelling deserves its own appliance.

A comfortable and installation-friendly system

Renovent HR has been designed with a view to ease of installation in practice. For that reason both Renovent HR Medium and Renovent HR are available in three versions: one type with all air connections at the top, another with two connections at the top and two at the bottom, and a third one with three connections at the top and one at the bottom. The Renovent HR Small is available with four connections at the top. The air connections of all versions come with a groove for sealing rings. The appliances can easily be rotated and ex factory they are available in a right-handed and a left-handed version.

3-way switch with filter indication
The filter indicator light shows when the filter must be cleaned.

CONSTANT FLOW FANS

The heat recovery unit comes with two self-adjusting 'constant flow' fans. In the selected ventilation setting these fans keep the constant air quantity constant under all conditions. This results in a permanently high efficiency and initial adjustment remains limited to the minimum. Filter fouling does not influence the preset air quantity either.

SETTINGS DISPLAY

The appliances come with a display for setting and reading out functions for increased ease of installation. A cable kit and a computer program are available for service purposes.

BYPASS: ADDITIONAL COMFORT WITH NIGHT VENTILATION

In winter it is pleasant and economical to retain heat in the dwelling. In summer on the other hand, freshness is preferred. The Renovent HR Medium and Large come available ex factory with a bypass for night ventilation that shuts off almost completely.

In summer this bypass unit ensures that cool night air replaces in so far as possible the indoor air that has been heated during the day. The air is routed through the bypass unit. The appliance comes with an automatic control system that opens and closes the bypass valve.

SIMPLE CONTROL

The Renovent HR can be controlled in various ways. The 3-way switch with filter indication allows the occupant to choose the right ventilation setting. This control can optionally be replaced by a wireless remote control or you can opt for fully automatic control on the basis of a humidity and/or CO_2 sensor.

Brink Renovent HR

"Brink Climate Systems balanced ventilation brings comfort and health to your home throughout the year"

After all, wouldn't you like to always have plenty of clean, fresh air in your home? Brink Renovent HR ensures that the indoor air is continuously being refreshed. The incoming and outcoming air flows are equal. In other words, balanced ventilation. At an efficiency of roughly 95%, Brink Renovent HR transfers the thermal energy from the output air to the fresh, colder outdoor air. That means draught-free and unnoticed ventilation at only 10% of traditional ventilation costs.

High comfort, low-energy ventilation

A COMPACT APPLIANCE IN 3 MODELS

Brink Renovent HR has a reputation for being a compact appliance. The appliance comes in three models: Brink Renovent HR Small, Medium and Large with capacities of approx. 180, 300 and 400 m^3/h respectively at 150 Pa.
The appliances can easily be rotated and ex factory they are available in a right-handed and a left-handed version.

EVERY SITUATION REQUIRES ITS OWN APPLIANCE

Brink Renovent HR Medium and Large are available in three versions: four air connections at the top (4b), two connections at the top and two at the bottom (2b/2o) and three connections at the top and one at the bottom (3b/1o). Brink Renovent HR Small is only available with four air connections at the top (4b). The air output spigots to the atmosphere and the air input from the atmosphere are always at the top. All air connections come with a groove for sealing rings. Dependent on the air flow rate, Brink Renovent HR Small is suitable for connecting ducts with Ø 125 mm, Medium for ducts of Ø 150 or Ø 160 mm (from approx. 260 m^3/h) and Large for ducts of Ø 160 (up to approx. 325 m^3/h) and Ø 180 mm. That allows for installation of a low-resistance ducts system directly from the appliance.

CONSTANT FLOW FANS

At the chosen ventilation setting, the constant flow fans keep the air flow rate constant under all conditions. This results in a permanently high efficiency while reducing initial adjustments to the minimum. The air flow rate is not influenced by filter fouling either.

FROST PROTECTION

The frost protection system provides optimum protection from freezing. That preserves the high efficiency to the extreme.

LOW VOLTAGE

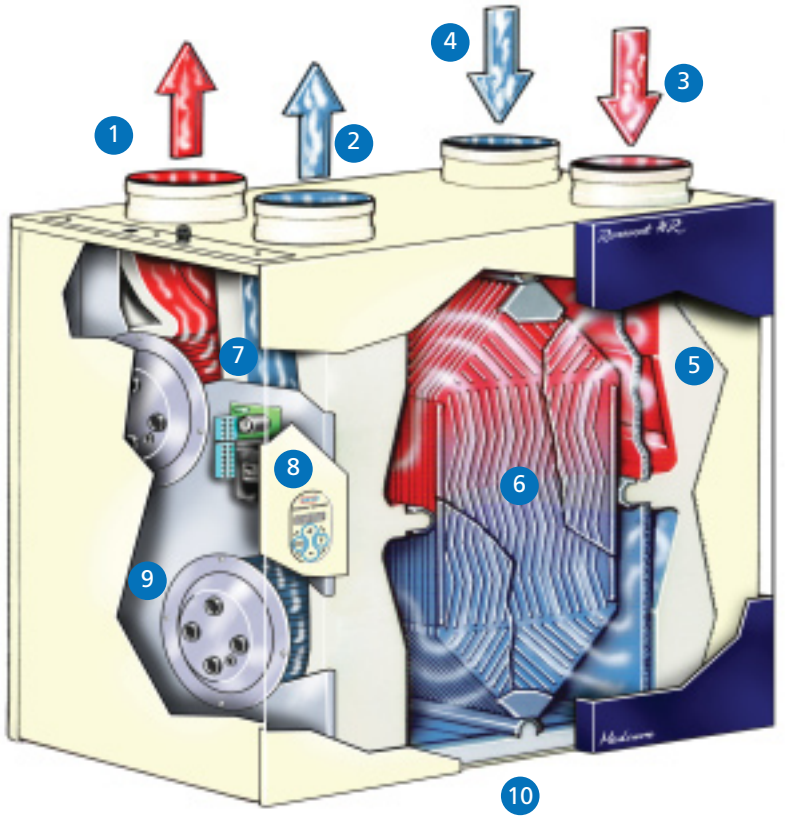
The appliances come as standard with a 230 V power cable and a low-voltage control connection. The control data cable is easily plugged in with a data communication connector.

CONSTANT FILTERING

The appliances come with two standard filters that can easily be take out. These filters remove 95% of the dust from the air. A high-performance fine dust filter (F7) is optionally available (see bottom filter on the photograph). Ideal for people with sensitive respiratory organs.

Fine dust filter (F7)

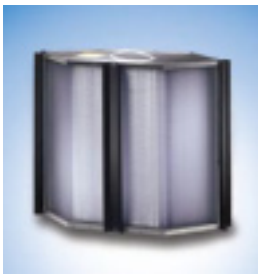
BRINK Climate Systems



KEY
1. Heated outdoor air to the bedroom and the sitting room
2. Discharge foul air
3. Discharge foul air from kitchen, bathroom and toilet
4. Supply outdoor air
5. Filters
6. Heat exchanger
7. Control pcb
8. Display
9. Direct current fans for constant volume
10. Condensate discharge

High comfort, low-energy ventilation

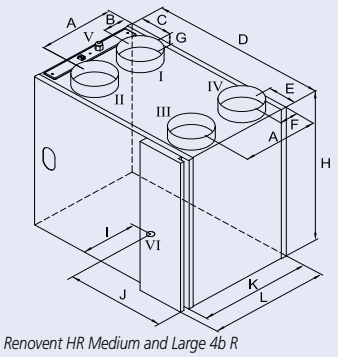
Settings display
The appliances come with a display for setting and reading out functions for increased ease of installation. A cable kit and a computer program are available for servicing purposes.



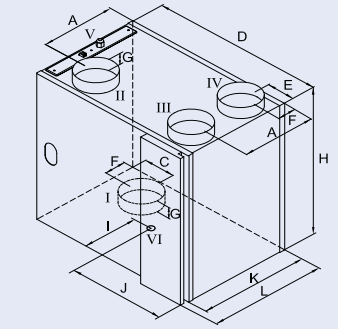
Naturally 95% efficiency
The synthetic heat exchanger transfers 95% of the heat, which makes further heating of the ventilation air superfluous (measured under NEN 5138). The EPS contribution is approx. 0.3.

TECHNICAL SPECIFICATIONS

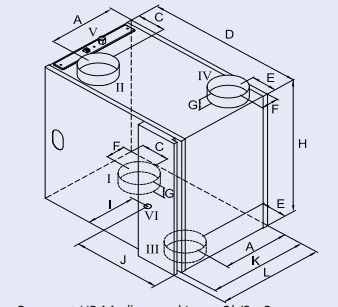
Appliance	Small	Medium	Large
Ventilation capacity at 150 Pa [m³/h]	Maximum 180	Maximum 300	Maximum 400
Rated power [W]	120 at 150 m³/h	175 at 300 m³/h	300 at 400 m³/h
(dependent on setting)	(at 150 Pa)	(at 150 Pa)	(at 150 Pa)
Dimension duct connection [mm]	Ø 125	Ø 150 and Ø 160	Ø 160 and Ø 180
H x W x D [mm]	600 x 560 x 290 (with bypass 500)	602 x 675 x 420 (with bypass 510)	602 x 675 x 430
Weight [kg]	25	31	32
Temperature efficiency [%]	95	95	95



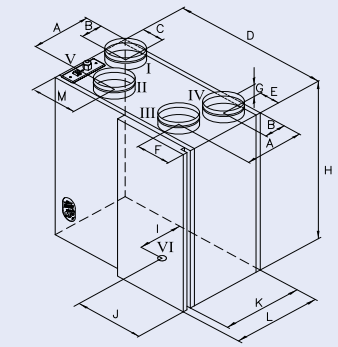
Renovent HR Medium and Large 4b R



Renovent HR Medium and Large 3b/1o R



Renovent HR Medium and Large 2b/2o R



Renovent HR Small 4b R

KEY

I To dwelling
II To atmosphere
III From dwelling
IV From atmosphere
V Electric connections
VI Condensate discharge

DEMAND-CONTROLLED VENTILATION

Usually the input ventilation air is divided on the basis of the size of the various rooms.

The fresh outdoor air to those rooms is really needed. That can be achieved with demand controlled ventilation based on occupation (CO_2 measurement) or time programming (clock function). A TNO certificate of equivalence indicates that the
EPC advantage from such a controlled demand system is 0.072 (2-zone time control) to 0.081(2-zone CO_2 control).

HOW IT WORKS

When the air quality is good, there is no need for ventilation. The air quality deteriorates when people are present, for instance in the living room. In that case, first the available ventilation air will be sent to the living room in an intelligent manner. Only when that appears to be insufficient, the quantity of ventilation air will be increased. That means customised ventilation; the available ventilation air is sent to the room where the ventilation air is needed. A lower ventilation flow rate means a lower energy consumption and a lower sound level.

REMOTE CONTROL CBB

Communication between the various components is arranged through the Zigbee protocol. The Zigbee protocol is a wireless communication system. All components, so also the remote control CBB (Control Panel Brink), are connected to a wall socket.

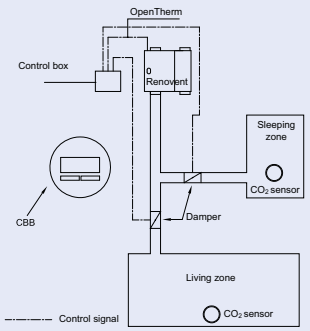
OPERATION

- Automatic based on presence (CO_2 measurement). CO_2 sensors determine the ventilation air flow rate. At night, the ventilation in the living room is reduced to the minimum and, conversely, can be increased in the bedrooms, without the high flow rate causing additional noise nuisance.
- Automatic based on a time program (clock function). A menu enables adjustment of the control damper settings for every day.
  The user can set six time blocks per day.
- Manual control. The fan setting can directly be changed by turning the rotary knob on the remote control CBB.

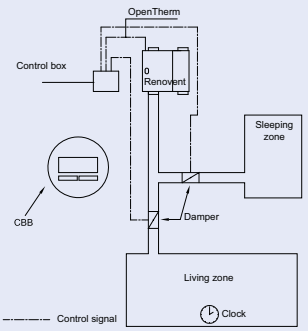
ACCESSORIES FOR BALANCED VENTILATION WITH HEAT RECOVERY

Brink Climate Systems has developed and selected appliance-specific accessories that can be used to create an excellent installation. Starting points are quality and ease of use and assembly.

Setup with CO_2-sensor



Setup with clock function



DIMENSIONS RENOVENT HR SMALL, MEDIUM AND LARGE (IN MM)

Type	A	B	C	D	E	F	G	H	I	J	K	L	M
Small	213	77	79	560	75	125	45	600	50	210	290	455	168
Medium	321	121	165	675	89	99	45	602	210	385	420	445	-
Large	336	126	165	675	89	114	53	602	220	385	430	455	-

Climate Systems

BYPASS UNIT FOR NIGHT VENTILATION

Brink Renovent HR Medium and Large are available ex factory with a bypass for night ventilation that shuts off almost completely. In summer, this bypass unit ensures that cool night air replaces in so far as possible the indoor air that has been heated during the day. The air is routed through the bypass unit. The appliance comes with an automatic control system that opens and closes the bypass valve.

A bypass unit can also be retrofitted by the installer or the user. This bypass unit leads roughly 70% of the input air around the Renovent HR heat exchanger.

3-WAY SWITCH WITH FILTER INDICATION

The 3-way switch allows the user to choose between three modes:
1. absence mode, 2. presence mode and 3. cooking/showering mode. The 3-way switch is connected quickly and easily on the outside of the appliance using a data cable and a connector. That makes connecting quick and easy. In addition, it is possible to connect several switches, for instance in the bathroom.
For convenience of the occupant, a 3-way switch is available with a filter indicator light. That shows when the filter has to be cleaned.

WIRELESS REMOTE CONTROL

A radiographically operated remote control is available as well. It can control the ventilation system from anywhere in the house without electric provisions. Several remote controls (transmitters) can be set for one receiver, for instance in the bathroom as well as in the kitchen.

ADDITIONAL CONTROL OPTIONS

Brink Renovent HR Medium and Large can be extended with an option pcb. This pcb can be used to control various accessories, for instance a preheater and/or postheater (1000 W), a damper for sending extra ventilation air to certain rooms or an emergency contact. In addition, the option pcb has an input for a CO_2 sensor and a humidity sensor.

AIR DISTRIBUTION

A good ventilation system should not cause noise nuisance or create any potential health hazards. Brink Climate Systems have developed a unique air distribution system called Brink Air Excellent. This is a synthetic system integrating acoustic manifolds and a low profile internal PE duct which is anti static and Antimicrobial and fully cleanable (an extremely important consideration towards your future health). The Brink Air Excellent system forms the basis of our 'Climate OK' program (described on page 17). The air distribution system is one of the most important components of any balanced ventilation system.

SOUND PRESSURE RENOVENT HR MEDIUM

Frequency [Hz]	125	250	500	1000	2000	4000	Tot [dB(A)]
100 m³/h, 40 Pa	-5	-6,3	4,5	8,4	-13,2	-17,5	10,2
150 m³/h, 60 Pa	0,6	0	10,4	11,2	-5,3	-9,8	14,3
300 m³/h, 160 Pa	11,8	13,8	24	22,2	10,3	5	26,7

SOUND PRESSURE RENOVENT HR LARGE

Frequency [Hz]	125	250	500	1000	2000	4000	Tot [dB(A)]
100 m³/h, 40 Pa	-5	-6,3	4,5	8,4	-13,2	-17,5	10,2
200 m³/h, 80 Pa	5,7	6,2	14	15,2	2	-2,5	18,3
400 m³/h, 160 Pa	18,1	23,8	33,9	30,8	12,6	23,8	36,3

CONTENTS CONNECTING KITS RENOVENT HR SMALL, MEDIUM AND LARGE

	Ø 125 mm	Ø 150 mm	Ø 160 mm	Ø 180 mm
Finished section acoustic insulating hose	2 x 1 m	2 x 1 m	2 x 1 m	2 x 1,5 m
Thermally insulating hose	-	-	1 x 3 m	1 x 3 m
Universal clamping strips	4	4	8	8
Armaflex tape	1,25m	1,25 m	1,25 m	1,25 m

HR HEAT RECOVERY DUCT SYSTEM

The revolutionary HR heat recovery synthetic duct system is available in Ø 125, Ø 150 and Ø 180 mm. The material insulates and allows creation of a neat system. The availability of long sections (2.25 m) makes the HR heat recovery duct system very quick and easy to assemble with only a little waste.

Also under complicated assembly conditions, the flexible material offers practical possibilities.

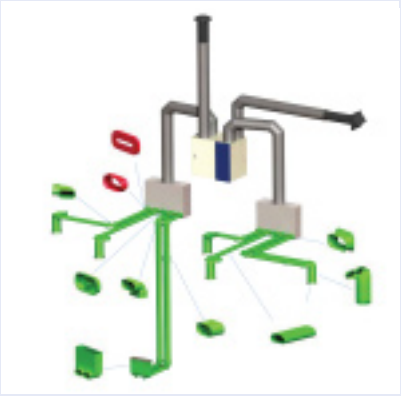
In addition, the long socket sleeves and compact bends (15°, 30°, 45° and 90°) take up less space and make the entire system functional and practical. The HR heat recovery pipe is used for the primary fresh air supply from atmosphere to the unit and the secondary waste air from the unit to atmosphere.

BRINK AIR EXCELLENT – AIR DISTRIBUTION SYSTEM

Brink has developed an innovative low profile range of ducts for the MVHR ventilation market, complete with all required accessories such as couplings, end pieces, air seals and restrictors (dampers). The sophisticated design, dimensions and layout of the system result in a low air resistance, which is important for proper performance of the ventilation system. All ducts are semi-rigid 100 mm x 50 mm oval.

SOUND REDUCTION

The relatively soft EPE material offers additional sound absorption compared to more rigid materials such as metal and EPP. A comparative measurement of a 90° bend and 3 metres of duct on a heat recovery unit (at 225 m³/h) shows an additional sound absorption of EPE compared to metal and EPP of 6 and 5 dB(A) respectively.



INSTALLATION EXAMPLE

Every situation requires its own appliance. For the above installation, the Renovent HR Medium 2b/2o R was opted for. The ducts from and to the atmosphere are from our range HR heat recovery duct system. The ducts to and from the dwelling are provided with the semi rigid PE Green Brink Air Excellent ducting. This is all part of the Brink 'Climate OK' program

FLOW RESISTANCE VALUES (in Pa-static)

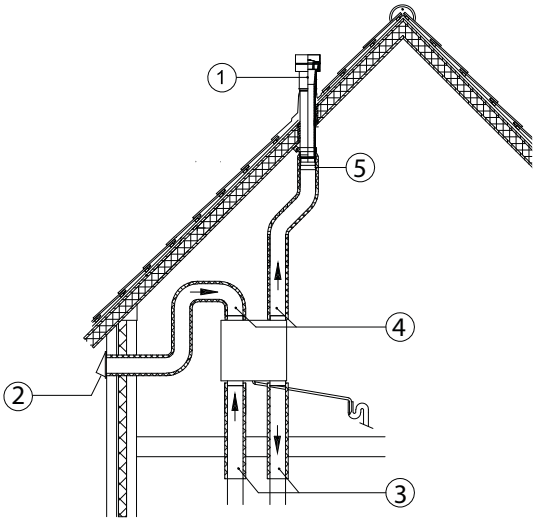
HR Heat recovery duct system	Ø 125 mm at 150 m³/h	Ø 150 mm at 225 m³/h	Ø 180 mm at 325 m³/h
Pipe per meter	1,6	1,3	1,1
Bend 90°	6,2	5,3	6,4
Bend 45°	3,6	3,5	3,2
Bend 30°	-	2,5	1,6
Bend 15°	-	0,4	1,2

PARTS

Synthetic pipe and bends (45° and 90°) with socket sleeves for the HR heat recovery duct system.

INSULATED DUCT TERMINATION COWLS FOR HRV INSTALLATIONS

To prevent condensation problems, it is important to use sleeves that have specially been developed for ventilation systems with Brink HR heat recovery. Brink developed a range of sleeves with internal insulation. These combine perfectly with the HR heat recovery duct system and with the thermal hose from the connection kits.



KEY SLEEVES RENOVENT HR

Description	Ø 125 mm < 180 m³/h	Ø 150 mm < 250 m³/h	Ø 160 mm 250 - 325 m³/h	Ø 180 mm > 325 m³/h
1 = Ventilation roof sleeve (output) D125	•			
Ventilation roof sleeve (output) D150	•	•		
Ventilation roof sleeve (output) D166			•	•
2 = Ventilation input (wall) D125	•			
Ventilation input (wall) D150	•	•		
Ventilation input (wall) D180			•	•
3 = HR duct D125	•			
HR duct D150		•		
Thermally insulated hose (D160)			•	
HR duct D180				•
4 = Adapter 150-125 and coupler D125	•			
Adapter 180-150 and coupler D150				•
Adapter 160-150 and coupler D150			•	
5 = Adapter 150-125 and coupler D125	•			
Adapter 180-160 and coupler D180			•	

COMMISSIONING OF SYSTEM

The commissioning of the system is the most important part of the process. The commissioning process ensures that the system complies with the current Part F (Ventilation) building regulations. It is not enough to have 0.5 air changes per hour within the dwelling. The system must be balanced to comply with correct airflow extraction rates from kitchens and bathrooms etc. Commissioning should be carried out with a calibrated anenometer and a commissioning certificate showing the airflows should be presented to the owner. It is important to remember that MVHR systems are designed primarily as ventilation systems, the heat recovery aspect is to provide energy efficiency within the dwelling but ventilation is the primary objective. A system that is not correctly commissioned will not function correctly.

INSTALLATION

The Brink Renovent HR ventilation unit is characterised by a compact assembly format. All air connections are located on the upper face. The air connections provide approved flexible capabilities. The insulating noise-absorbing connector can be rotated to suit requirements; thus facilitating assembly of the air duct to the unit, while simultaneously preventing noise transmission through the air distribution system. Brink operate an installation training program for installers. Brinks recommend you use an Brink registered installer

APPENDIX Q - SAP / DEAP

For energy assessors, The Brink Renovent HR-L is independently tested and registered on the Appendix Q listing. Also, The Brink Air Excellent low profile semi rigid duct is also tested and listed on the Appendix Q register. It is eligible for energy calculations performed with the SEI-DEAP or the UK Energy SAP software. The Brink Renovent HR-M has a Specific Fan Power from 0.49 W/l/s @ 90%.

TECHNICAL SPECIFICATIONS RENOVENT HR LARGE (BOTH FOR APPLIANCE WITH AND WITHOUT BYPASS UNIT)

Technical Specifications	Renovent HR Large
Dimension duct connection [mm]	Ø 160 and Ø 180
Weight [kg]	32 (exclusive of weight bypass unit of 3.5)
Supply voltage [V~Hz]	230/50
Protection degree	IP31
Temperature efficiency [%]	95

Mode	Absence mode	Presence mode	Cooking/showering mode	Maximum mode
Ventilation capacity [m³/h]	100	200	300	400
Resistance ducts system [Pa]	10	40	83	150
Rated power [W]	20	56	136	304

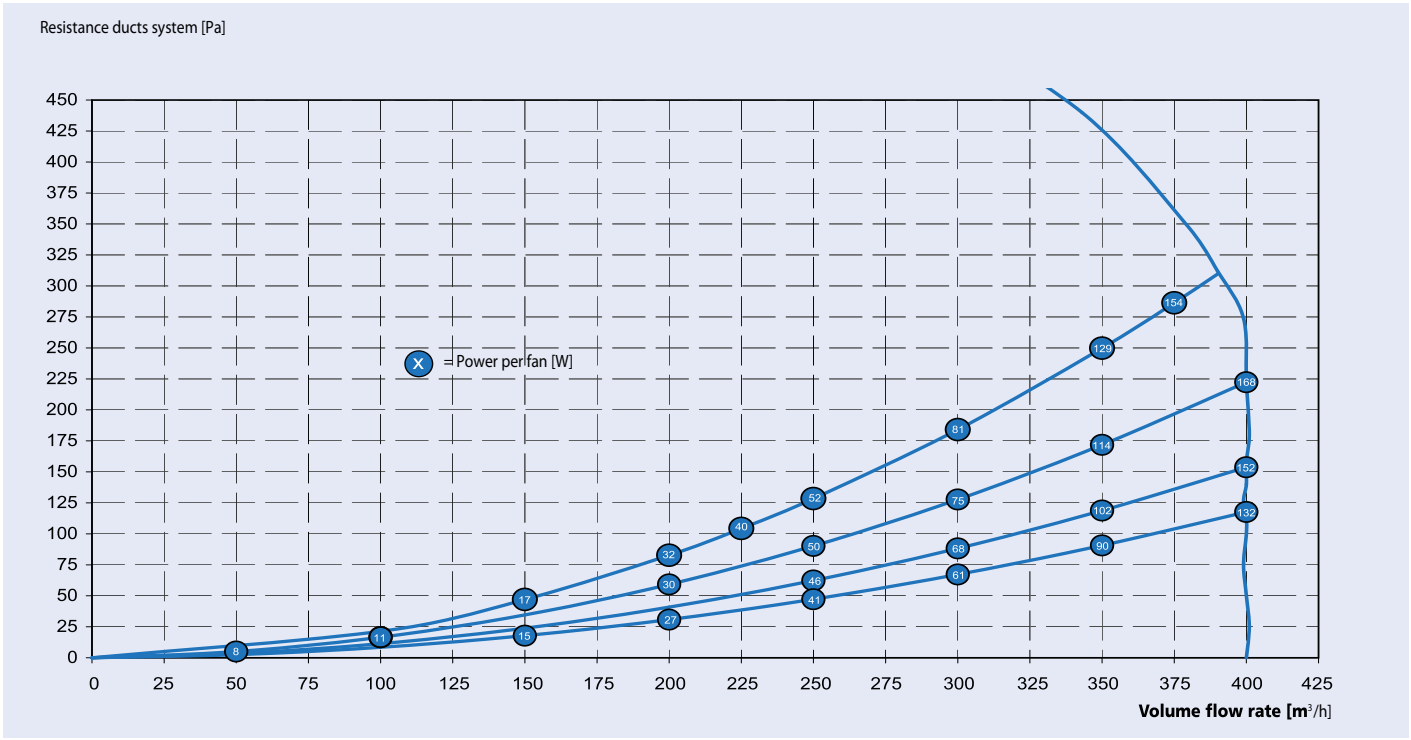
EPS Calculation
Brink Climate Systems has information available for correctly entering date in an EPS calculation. Please contact our Consultancy Department.

SOUND CAPACITY LEVEL L_W RENOVENT HR LARGE

Acoustic data	Absence mode	Presence mode	Cooking/showering mode
Static pressure [Pa]	40	80	240
Acoustic capacity housing emission [dB(A)]	<32	42	53
Acoustic capacity duct "from" dwelling [dB(A)]	<31	38	47
Acoustic capacity duct "to" dwelling [dB(A)]	51.5	62	69

The above acoustic data is based on the unit only and is not related to the level within the room. External noise being transmitted from outside into the dwelling is greatly reduced in 'airtight' construction – as a result background noises are more noticeable. The Climate OK system incorporates acoustic measures as standard procedure. Such as, decoupling, insulation and acoustically treated manifolds. In addition, design criteria dictates velocities of around 2,5m/s in the tributary ducts. A Climate OK installation has a targeted system noise level of +/- 29,5dB(A). This figure can be further reduced with additional acoustic treatment if specified.

FAN GRAPH RENOVENT HR LARGE



Climate Systems

TECHNICAL SPECIFICATIONS RENOVENT HR MEDIUM (BOTH FOR APPLIANCE WITH AND WITHOUT BYPASS **UNIT)**

Technical Specifications	Renovent HR Medium
Dimension duct connection [mm]	Ø 150 and Ø 160
Weight [kg]	31 (exclusive of weight bypass unit of 3.5)
Supply voltage [V~Hz]	230/50
Protection degree	IP31
Temperature efficiency [%]	95

Mode	Absence mode	Presence mode	Cooking/showering mode	Maximum mode
Ventilation capacity [m³/h]	100	150	225	300
Resistance ducts system [Pa]	18	45	100	170
Rated power [W]	19	36	86	180

EPS Calculation

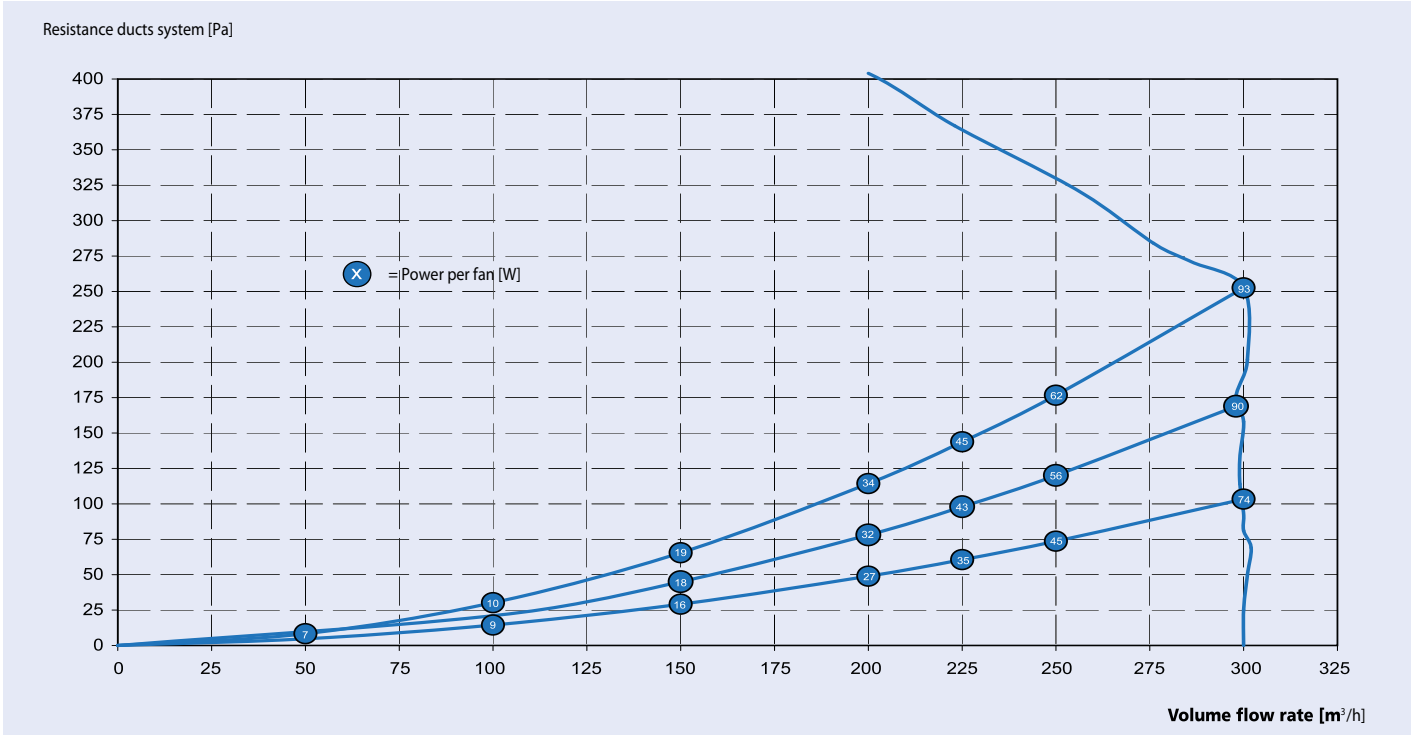
Brink Climate Systems has information available for correctly entering data in an EPS calculation. Please contact our Consultancy Department.

SOUND CAPACITY LEVEL L_W RENOVENT HR MEDIUM

Acoustic data	Absence mode	Presence mode	Cooking/showering mode
Static pressure [Pa]	40	80	160
Acoustic capacity housing emission [dB(A)]	29	38	47
Acoustic capacity duct "from" dwelling [dB(A)]	<24	33	41
Acoustic capacity duct "to" dwelling [dB(A)]	49	56	66

The above acoustic data is based on the unit only and is not related to the level within the room. External noise being transmitted from outside into the dwelling is greatly reduced in 'airtight' construction – as a result background noises are more noticeable. The Climate OK system incorporates acoustic measures as standard procedure. Such as, decoupling, insulation and acoustically treated manifolds. In addition, design criteria dictates velocities of around 2,5m/s in the tributary ducts. A Climate OK installation has a targeted system noise level of +/- 29,5dB(A). This figure can be further reduced with additional acoustic treatment if specified.

FAN GRAPH RENOVENT HR MEDIUM



TECHNICAL SPECIFICATIONS RENOVENT HR SMALL

Technical Specifications	Renovent HR Small
Dimension duct connection [mm]	Ø 125
Weight [kg]	25
Supply voltage [V~Hz]	230/50
Protection degree	IP31
Temperature efficiency [%]	95

Mode	Absence mode	Presence mode	Cooking/showering mode	Maximum mode
Ventilation capacity [m³/h]	75	100	150	180
Resistance ducts system [Pa]	24	42	102	150
Rated power [W]	25	34	74	116

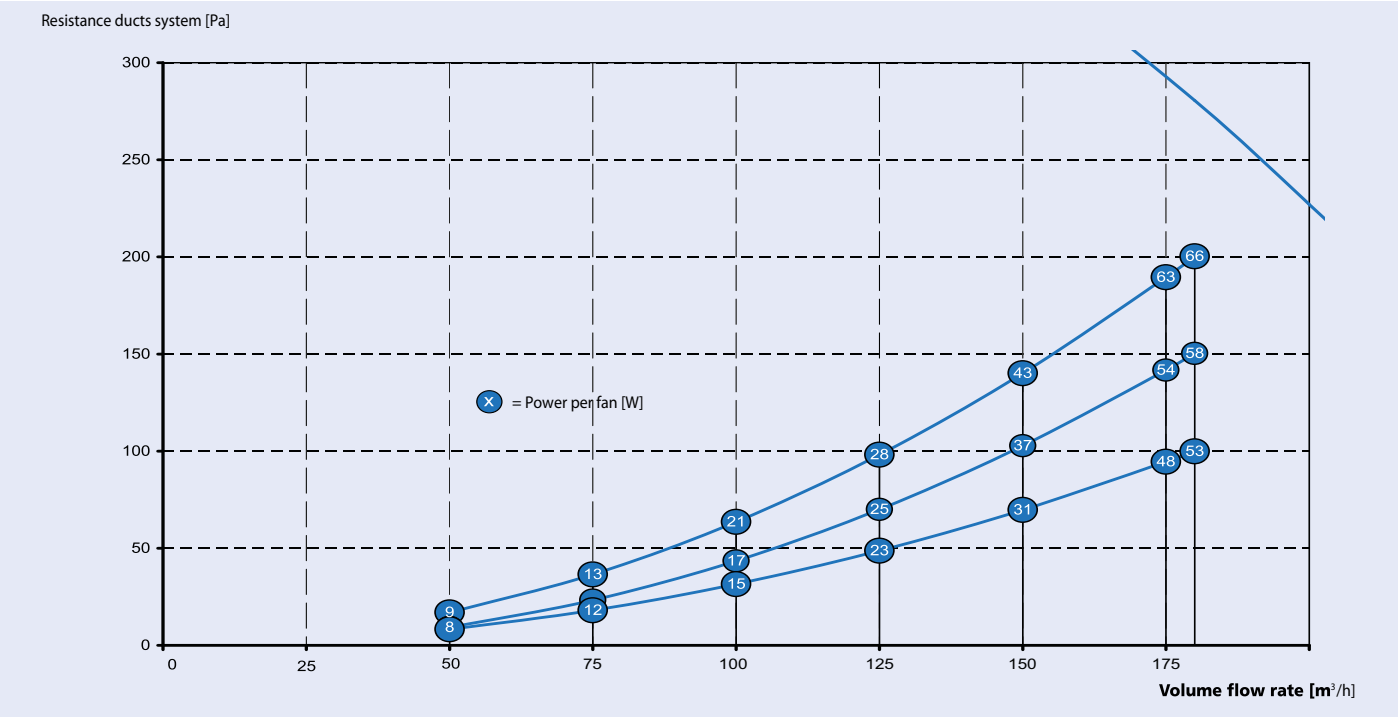
EPS calculation
Brink Climate Systems has information available for correctly entering data in an EPS calculation. Please contact our Consultancy Department.

SOUND CAPACITY LEVEL L_W RENOVENT HR SMALL

Acoustic data	Absence mode	Presence mode	Cooking/showering mode
Static pressure [Pa]	40	80	160
Acoustic capacity housing emission [dB(A)]	32	39	48
Acoustic capacity duct "from" dwelling [dB(A)]	31	37	46
Acoustic capacity duct "to" dwelling [dB(A)]	49	56	66

The above acoustic data is based on the unit only and is not related to the level within the room. External noise being transmitted from outside into the dwelling is greatly reduced in 'airtight' construction – as a result background noises are more noticeable. The Climate OK system incorporates acoustic measures as standard procedure. Such as, decoupling, insulation and acoustically treated manifolds. In addition, design criteria dictates velocities of around 2,5m/s in the tributary ducts. A Climate OK installation has a targeted system noise level of +/- 29,5dB(A). This figure can be further reduced with additional acoustic treatment if specified.

FAN GRAPH RENOVENT HR SMALL



TECHNICAL SPECIFICATIONS RENOVENT HR SWB

Technical Specifications	Renovent HR SWB
Dimension duct connection [mm]	Ø 150
Weight [kg]	35
Supply voltage [V~Hz]	230/50
Protection degree	IP31
Temperature efficiency [%]	95

Mode	Absence mode	Presence mode	Cooking/showering mode	Maximum mode
Ventilation capacity [m³/h]	100	150	225	300
Resistance ducts system [Pa]	20	44	100	175
Rated power [W]	18	30	74	146

EPS calculation

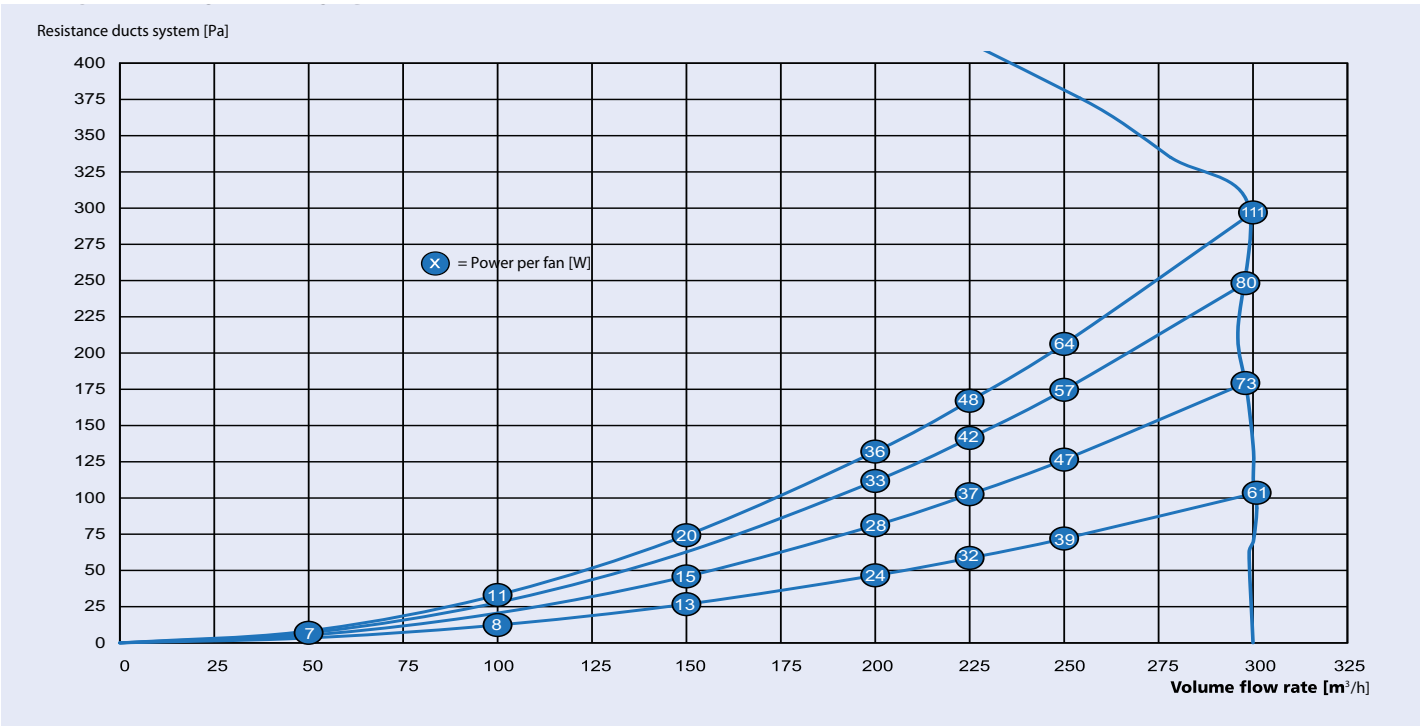
Brink Climate Systems has information available for correctly entering data in an EPS calculation. Please contact our Consultancy Department.

SOUND CAPACITY LEVEL L_W RENOVENT HR SWB

Acoustic data	Absence mode	Presence mode	Cooking/showering mode
Static pressure [Pa]	40	80	160
Acoustic capacity housing emission [dB(A)]	38	46	55
Acoustic capacity duct "from" dwelling [dB(A)]	36	46	55
Acoustic capacity duct "to" dwelling [dB(A)]	56	66	75

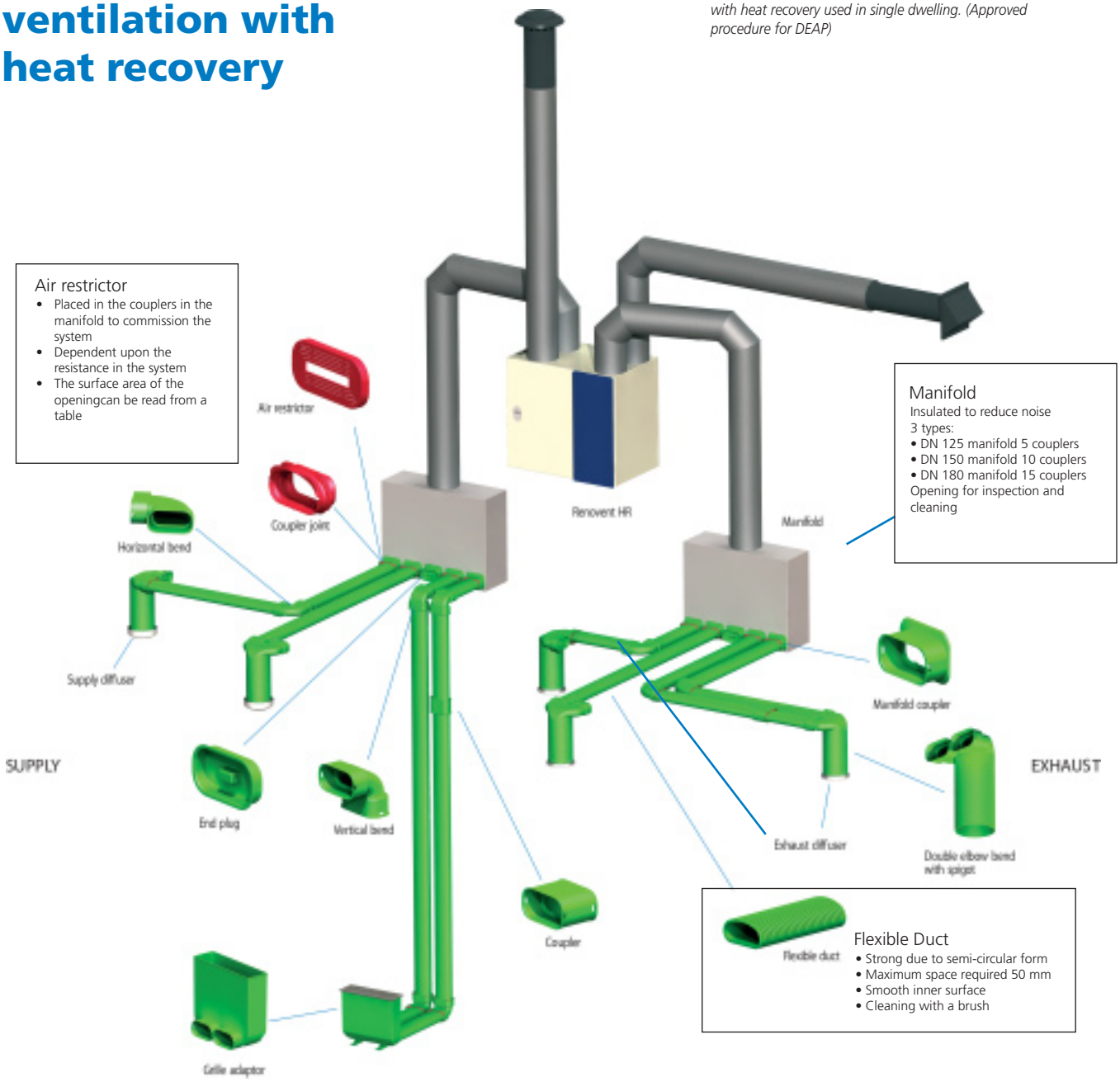
The above acoustic data is based on the unit only and is not related to the level within the room. External noise being transmitted from outside into the dwelling is greatly reduced in 'airtight' construction – as a result background noises are more noticeable. The Climate OK system incorporates acoustic measures as standard procedure. Such as, decoupling, insulation and acoustically treated manifolds. In addition, design criteria dictates velocities of around 2,5m/s in the tributary ducts. A Climate OK installation has a targeted system noise level of +/- 29,5dB(A). This figure can be further reduced with additional acoustic treatment if specified.

FAN GRAPH RENOVENT HR SWB



Air distribution system for balanced ventilation with heat recovery

Brink Air Excellent certified to IS EN 13141-7 – Performance testing of products for residential ventilation – central mechanical supply and exhaust ventilation system packages with heat recovery used in single dwelling. (Approved procedure for DEAP)

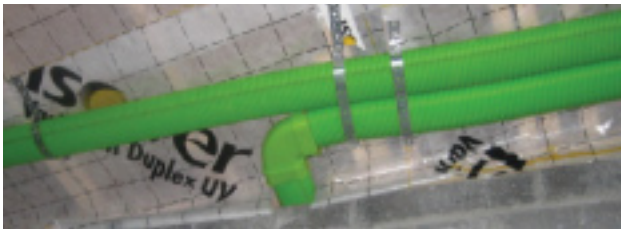


BRINK AIR DISTRIBUTION SYSTEM

Brink Climate Systems has developed a completely new synthetic air distribution system for balanced ventilation with heat recovery; a modular system composed of a semi-circular, semi-rigid duct, various accessories and two manifolds, one for exhaust and one for supply. The height of the semi-circular, semi-rigid is only 50 mm and the flow rate is 30-35 m³/h with a flow velocity of about 3 m/s. When 60 m³/h is required, two ducts should be used. The system is "plug and play". The semi-circular duct can be connected to the manifold and diffusers with a wide range of accessories. The bending radius of the duct is >200 mm (horizontal) and >150 mm (vertical). The diagram below depicts a complete system with a heat recovery unit and air distribution system, including two manifolds, air supply and extract ducts, couplers and diffusers. The duct is antistatic and has antibacterial properties.

"PROTECT your home protect your health Insist on Climate OK".

TECHNICAL SPECIFICATIONS



BRINK HR DUCT
Flame retardent Polyether Foam 2010-4-26
Flame extinguishing B1 according to DIN 4102 – Grey EPE
Density 30Kg/m² - Grey EPE
Heat conducting coefficient 0,04 W/m°K according to DIN 52613 (at 0°C) – Grey EPE
Temperature range -40°C to +60°C
Airtightness class B Luka (EN 12237:2003)
Directive 2002/95/EC (RoHS) compliant
Manifold material 1,00mm NEN-EN10131 (MAT.ST.02Z 275 NA NEN-EN 10142/10143)

BRINK AIR EXCELLENT SYSTEM
Fire rated Class F (EN 13501) – green duct PE-G-GRN
PP anti bacterial, anti static
Green R140G200B63 / Red RAL 3020
Directive 2002/95/EC (RoHS) compliant
Density 0,963 g/cm³
Antistatic <10 G Ohm
Tensile strength >10 MPa
Melting temperature >119°C
Vicat softening temperature >92°C
Antimicrobial ARGUSAN AM 07 PP

OTHER BRINK PRODUCTS

Decentral ventilation with Advance as energy-saving solution

Optimum ease of operation

DECENTRALISED VENTILATION WITH BRINK ADVANCE

Ventilation with heat recovery has successfully been used as energy-saving solution for some time now. In Finland the use of balanced ventilation has even been made mandatory for dwellings. In response to demands from many clients for a decentral ventilation system without the need for extensive ducting, Brink Climate Systems developed the Advance appliance.

Depending on the energy savings requirements, every habitable room may be equipped with an Advance or a hybrid solution may be opted for. Advance is then used in spaces where comfort (draught-free ventilation) is important in combination with input of "fresh" air into the bedrooms.

Air Heating Systems with Brink Elan & Allure

THE ALLURE

The Allure air heater is available in three different capacities of 4-40 kW in models with upflow or downflow versions. The main parts of the Allure are the heat exchanger and the burner. The heat exchanger is made of special corrosion-resistant stainless steel that can stand high temperatures and the continuous temperature changes. Moreover, the material is insensitive to the condensation that is released when flue gases are cooling down. The burner is also made of stainless steel and it can be adjusted to 25% of the maximum capacity. To prevent burner fouling, it is placed so that no dirt can fall onto it. All these measures result in a very long and trouble-free service life for the Allure.

ELAN

Brink brings you a healthy and comfortable indoor climate throughout the year. Brink has integrated heating and ventilation in its compact unit 'Elan'. Brink's heat recovery ventilation unit 'Renovent HR' extracts stale, damp indoor air from the wet rooms and supplies fresh outdoor air to the rooms.

Heat from the extracted air is transferred to the fresh, outside air. This means draught-free ventilation at less than 10% of traditional ventilation costs.

"Energy saving in new built dwellings and renovation."

Application

The Passive House concept is suitable for newly built houses as well as for innovative renovation projects.

The Passive House Appliance

PASSIVE HOUSE APPLIANCE

Brink Climate Systems offers an integrated solution for sustainable heating, high-efficiency ventilation with heat recovery, and domestic hot water supply. All this for dwellings that comply with the Passive House standard. Current developments with regard to CO_2 reduction objectives in Europe have considerably raised social awareness with regard to increased energy savings in the built-up environment. With the Passive House Appliance, Brink Climate Systems Ireland wants to make a contribution in the Netherlands to the high ambitions recently laid down in various covenants between governments and the building industry aimed at energy saving measures. This solution provides a better balance between comfort and energy savings.

flynn

Heat Recovery Systems

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